

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or Agent's file reference	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) FOR FURTHER ACTION	
International application No. PCT/EP 03/50757	International filing date (day/month/year) 27.10.2003	Priority date (day/month/year) 29.10.2002
International Patent Classification (IPC) or national classification and IPC G06N5/04		
Applicant THALES et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36..

2. This REPORT consists of a total of 6 sheets including this title page.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Instruction 607 of Administrative Instructions of the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement according to Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 20.03.2004	Date of completion of this report 03.12.2004
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I. Basis of the report

1. This report has been drawn up on the basis of the following elements (*the replacement sheets received by the receiving office in response to an invitation according to Article 14 are considered in the present report as "originally filed" and are not annexed to the report as they contain no amendments (Rules 70.16 and 70.17).*):

Description, pages:

1-64 as originally filed

Insert no. here received on Insert date here with the letter of Insert date here

Claims, No.:

1-13 as originally filed

Insert no. here received on Insert date here with the letter of Insert date here

Drawings, sheets:

1-8 as originally filed

Insert no. here received on Insert date here with the letter of Insert date here

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

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International application No. PCT/EP 03/50757

5. This report has been written disregarding (some of) the amendments, which were considered as going beyond the description of the invention, as filed, as is indicated below (Rule 70.2(c)):

(All replacement sheets comprising amendments of this nature should be indicated in point 1 and attached to this report).

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty	Yes:	Claims	1-13
	No:	Claims	
Inventive Step	Yes:	Claims	1-13
	No:	Claims	
Industrial Applicability	Yes:	Claims	1-13
	No:	Claims	

2. Citations and explanations

see separate sheet

Concerning point V

Reasoned statement according to Article 35(2) as to novelty, inventive step and industrial applicability; citations and explanations in support of this statement

- 1). Reference is made to the following document/s:

D1: US 2002/023061 A1 (DAAMS JOHANNA MARIA ET AL) 21 February 2002 (2002-02-21)

D2: Thomas Cormen et al: "Introduction à l'algorithmique" DUNOD, Paris, 1994 ISBN 2 10 00 1933 3

This document was not cited in the introduction search report. A copy of this document is appended.

- 2). The subject matter of claims 1-13 is not patentable by virtue of Article 33(3) PCT for lack of inventive step.
- 2.1). Article 33(3) PCT stipulates that an invention is considered to involve an inventive step if, for a person skilled in the art, it does not follow in an obvious manner from the state of the art.

According to Rule 67.1 PCT, an invention is understood to mean a course affording a technical solution to a technical problem. If the invention claimed deals with an object or activities devoid of a technical nature, only the aspects or elements of the invention contributing to the technical nature are to be considered when assessing the inventive step.

The patent application considered relates to a decision making method using an expert system. According to the present application, the point of departure of the subject matter claimed seems to lie in the use of decision trees to model decision making from among a finite set of alternatives. D2, page 170 shows the use of a decision tree.

According to the application, the problem inherent in the decision trees consists in the way in which to take account of the inaccuracies and uncertainties in the knowledge of the expert and also compensatory phenomena.

Once again according to the invention, there exists a certain number of relatively classical fuzzy logic methods which allow indirect modelling of compensatory phenomena. The first relates to the use of so-called "conjunctive" fuzzy rules. The second is interpolation between rules.

The main drawback of the first approach is "combinatorial explosion" since it is necessary to explicitly state a rule for all possible combinations. The drawback of the second approach is that the way to obtain the global compensatory rule is sidetracked. The consequences of the interpolation may go beyond what the expert initially desired.

The solution to all these problems consists, according to the present application, in providing an expert with a duly reasoned opinion during decision making.

- 2.2). Although it is most advantageous that the system claimed poses questions with a view to allowing the introduction of a compensation condition into nonclearly identifiable rules, it is nonetheless a fact that this method does not go beyond an intellectual activity exhibiting all the typical aspects of fields with a nontechnical nature of mathematical know-how in relation to a human activity.
The assessment of inventive step will therefore have to be charged as any human activity impinging on a nontechnical field in accordance with rule 37(i) PCT: only the use of the expert system in a context providing a solution to a technical problem being able to contribute to attributing a technical nature to the invention.
- 2.3). The problem relating to the use of decision trees, which is set forth in a mathematical book (D2), unquestionably belongs to the field of mathematics. The same holds as regards problems coming within the state of the art cited, relating to "combinatorial explosion" or to the sidetracking of the way of obtaining the compensatory rule. It follows that the solution which consists in aiding the expert to reason directly with regard to compensation may exhibit no technical nature. The refinement envisaged by the subject matter claimed is therefore essentially of a mathematical character. It may not contribute to alleviating a lack of inventive step.
- 3). The characteristics of the dependent claims which form the subject of the deficiencies mentioned in point V-2 above, are either known from D1 resp. D2, or are part of the general knowledge of the person skilled in the art or do not contribute to alleviating the lack of inventive step in view of the nontechnical nature that they

exhibit. They contain nothing which goes beyond the state of the art, the tenor of which will involve an inventive step.